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ABSTRACT

The world is in the middle of a major paradigm shift, as the paradigm of dominion over nature is coming to an end with the acceptance of the arts and other subjectively oriented technologies as useful in our effort to live in the universe. Little by little, awareness of this fundamental change in world view is emerging. The importance of art in this new view is becoming apparent. The principles that guide art are actually those that seem to be missing from the scientific approach. The recognition of the values of intuition; feeling; personal perception; and the softer, warmer sides of life will bring a more humanistic approach to everything. Science and art should not be separate, but should be understood as both exploring the essential nature of the great mystery of life. Education must also change to accommodate the new paradigm, and it undoubtedly will, as people can no longer afford to split internal and external realities. (Contains 7 references.) (SLD)

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ED 363 287

# Dr. Artist

## by
## Thomas R. Lightfoot

*"We used to be much more confident about drawing distinctions between the things we could measure in the world 'out there' and the ideas we concocted about them, or the representations we made of them"* (Vanadoe, 1992).

The change Kirk Vanadoe refers to confirms the interesting proposition that the world is in the midst of a major paradigm shift. The scientific paradigm of dominion over nature is coming to an end with the acceptance of the arts and other "soft, warm, wet" (Witt-Miller, 1991) technologies as equal partners in our effort to live in harmony with the universe.

Enthusiasts of the computer age often dismiss the fear and rejection of modern hi-tech science, advanced medicine, and contemporary society by some people as the mere foolishness of Luddites who are afraid of change or anything new. A serious, longer and deeper look reveals that people are very likely reacting to the disregard for their very real and important subjective inner selves in the modern world's overwhelming emphasis on the external objective realities of science and technology.

A brief and very selective overview of people's attempts to understand the world and their place in it will give the perspective needed to see how this shift has come about.

The relationship to existence of our ancestors was, essentially, governed by a behavioral model. Beneficial behavior was learned through reinforcement. Chance encounters, when repeated, yielded the same results time after time. When the individual faced similar circumstances, responses became habitual. This early relationship with the world was shared by most living things. Real thought or consciousness was not involved at this point in evolution (Jaynes, 1990). Eventually, however, this did lead to an abstract understanding of causality. Not only did things happen repetitively and sequentially but, in fact, one event made another happen. This led to the even more abstract extension of this principle to understanding and even trying to control events in the world.

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Cooperation between people evolved as a very successful means of survival with people divided up responsibilities. The shaman must have come out of this division of labor along with the understanding of cause and effect relationships. As opposed to the nurturing mother and hunter-warrior who both operated more from the instinctual, behavioral level, some people must have had a greater sensitivity to these abstract relationships.

These early abstract thinkers knew how things worked. These individuals were in tune with the subtler connections between events, sensing which things led to others. Thunder and lightning led to rain. Certain plants helped wounds heal. Painting an animal on the wall of a cave and spearing it led to better hunts.

Some of this knowledge could be relied on. It could be repeated when necessary with predictable results. Some, however, was not as certain. This was the beginning of the separation between science and art. Science was practical and could be counted on while art had problems with repeatability. Art depended too much on personal involvement. It did continue to satisfy a perceived valuable role in people's lives. It had a connection with all that science could not explain.

There were many things beyond the practical grasp of science. People wondered where everything came from and why they were here. So, art took up the search for the internal realities of the emotions, the powerful feelings that made people act. Since art usually had little impact on everyday survival, science became the primary emphasis in moving forward toward easier lives.

The practical predictability of science was its power. Simple, linear causation, one thing leading directly to the next, was the cornerstone of its predictability.

Language developed in the same manner. Language narrated this movement from one thing to the next. Language allowed the understanding of causation, assuming *understanding* to be relating something new to something familiar as Julian Jaynes describes it (Jaynes, 1990). Language became the means to make the new and strange familiar.

Language translated simple causative events into familiar metaphors by labeling things and events. "This causes that" is the result of abstracting many similar events, reducing them to the common elements within them. Commonality is nothing more than sensing the familiarity within significant parts of events. Language is employed to label these isolated common characteristics. This ability to categorize, label, and communicate a category of experience became the essence of science.

The experiences that resulted in art did not conform to this linear abstraction. Events were experienced

as a whole. Many associations between things had no apparent sequential or causative relationship. Metaphoric,. linear language equivalents could not be used in relation to these events. Since the experiences that art was expressing did not have causal relationships the only way to communicate them was through metaphoric equivalents that did not have linear, causal components either. Painting and sculpture equated one experience with another without abstraction, without reduction, without generalization, therefore, without familiarization or understanding and without the ability to communicate reliably. This eventually rendered it practically useless for everyday survival needs.

Science took the lead as the most important human activity in solving problems and putting forth the promise of understanding and explaining existence itself. The repeatability of the results of scientific enquiry made it seem like it was describing some objective reality, that the model of the world which it created was an immutable fact or at least led in that direction. All that had to be done was to get some of the bugs out.

Model after model was imposed on the world, always with another bug to be worked out. First one anomaly then another didn't fit the model. More inclusive models were devised and more anomalies showed up. The quest for an all-inclusive model of the universe proved to be illusive and remains so to this day. In fact, it seems that the quest itself has reached some insurmountable roadblocks. The closer scientists think they are getting to an all inclusive theory the hazier objective reality becomes. The distinctions between objective reality and the subjective observer disappear at the heart of the matter.

Kirk Vanadoe's statement at the beginning of this paper has actually been true for a long time. Once Albert Einstein in 1905 stated that light could exist as a particle as well as a wave, the idea of objective reality became very problematic. How could one entity, light, have two distinct and mutually exclusive states of being. This paradox led to a series of speculations about our inability, if not the impossibility, of defining objective reality.

Niels Bohr's theory of complimentarity confirmed and brought general acceptance to Einstein's paradox in scientific circles. Werner Heisenberg's uncertainty principle extended this concept, recognizing that the outer, observed world is integrally connected with the subjective observer. John Wheeler, a student of Bohr, suggests an even more general perspective with the mind and the universe being complimentary parts of a binary system where one part makes no sense without the other (Shlain, 1991).

The general population has hardly been aware of the implications of this paradigm shift until very recently. The only awareness by the average person has

been that science and its handmaiden, technology, cannot solve all of the world's problems. People now realize that science and technology cause as many problems as they solve. The superior position of science, logic, and rationality is now in question. These cannot give a definitive answer to what the universe is like any more than art can. What people believe affects what is. How people imagine the world makes it so. People create their own reality as much as it defines them.

Evidence of the effects of such a fundamental change in world view (really, a fundamental change in the total understanding of the universe and the way people interact with it) is emerging, as one would expect from such a paradigm shift, from all levels and areas of society.

The universality of this change manifests itself in very divergent areas, making it very difficult to see the common thread that connects them all. By bringing the significant, and, seemingly unrelated, recent events together under the lens of this hypothesis their interrelationship can be seen.

One such significant event, the rise of religious fundamentalism, if viewed in this way, is happening because people are feeling the breakdown of the rational grip that science has had over people. The chink in the armor of science, the admission of subjectivity, opens a hole for all areas that depend on subjectivity to penetrate.

Religion's specialty has been to codify subjective experience. Some people are now beginning to think that if science doesn't have all the answers, maybe religion does. Like a pendulum reaching the end of its arc the inevitable swing to the other extreme is already anticipated, religion being one subjective opposite of objective science.

The successes of science and its apparent objectivity fueled the previous paradigm shift penetrating all levels of society. Religious, moral domination gave way to scientific, legal domination. Religion gave in to government, inspiration to pragmatism, morality to amorality.

The promise of science in these areas, however, was not fulfilled. Social ills could not be understood or fixed by science. The amoral atom does not have an equivalent in society. People do not interact by the strict rules of physics. Their interactions are, more often than not, messy and governed more by "soft, warm, wet" (Witt-Miller, 1991) ideas than by hard and cold facts. Many people, sensing this failure and wanting to fill the gap, are returning to the older religious answers.

The kind of overall changes suggested by this thesis would inevitably mean that drastic changes would occur at the level of basic social organization. Such a change has taken place with the fall of communism Though western scientists would probably not want

to take credit for it, communism was the direct result of applying scientific theories to social organization.

Under communism people were treated as if they were atoms guided by strict and equal rules of behavior. Scientific pragmatism meant amorality replacing an inspired religious morality. Scientific principles superseded human individuality. The ideal of a singular and superior objective reality dominated the vision of its founders. Its horrific failure was due to a failure to understand the subjective diversity of people.

Reassertion of the diversity of people is a major theme in this new shift. Where the scientific paradigm sought to see everyone as the same underneath the surface (promulgated by the DNA discoveries of Watson and Crick), the new paradigm accepts differences in people. This reveals itself in many different ways, some very disturbing. In the former Soviet republics the rejection of the concept that everyone is alike finds form in violent hostility. Each ethnic group is demanding autonomy, recognition of its own right to be different and to determine its own directions and goals.

Though this is at its emotional peak in eastern Europe, these emotional sentiments run deep throughout the world. Native peoples are claiming their rights in Canada and the U.S. Quebec is pushing for recognition of special status.

In general, people, especially in the U.S., are trying to figure out how to live and get along in smaller, more locally accessible units, on more *tribal* levels. People are experimenting with social systems that function on more human scales. Interdependence as *individuals* is the key that people are searching for as an alternative to the large impersonal governmental systems that treat everyone alike. New tribal groupings have developed among people of like interests, ethnic origins, sexual orientation, beliefs, and location.

The common element is working together on a smaller scale. The original tribal impulses came from a need to work together with others to meet an individual's needs in the face of a dangerous, competitive external world. This new tribalism is propelled by the same needs in a new dangerous, competitive world (Utne, 1992).

Along with this, an interest in aboriginal lifestyles has blossomed. Thousands of people go out into nature on weekends for retreats with Robert Bly or maybe with a Huichol shaman from Mexico. The aboriginal ways that acknowledge the balance between internal and external reality is finding new validity. These shamans, many are realizing, had and still have incredible practical wisdom about human affairs, nature, and the connection between the two through healing.

Science, through the American Medical Association, still rejects the importance of the mind-body connection mastered by these aboriginal peoples. Seduced by the rational authority of science most intelligent people accepted a view that the body was like other objects in the world or like machines that could be fixed simply by removing the rust or replacing the broken parts.

When science did not have an immediate cure for cancer people began to turn elsewhere for help. Now, with the despair brought on by AIDS, people are again looking everywhere for help since the scientific medical approach has so little hope to offer. This massive search, if only by trial and error, has uncovered a number of alternatives to traditional medicine. Successful means of dealing with many medical and psychological problems have been discovered or rediscovered.

Scientists continue to disregard these significant findings even with the evidence in front of them. Some in the medical profession don't even want these alternatives explored scientifically. There has been sharp criticism of the U.S. government's proposal to investigate, scientifically, the claims of these alternatives. Science appears to be blinded by its own methods, not seeing the experiential facts that real people have encountered and know to be useful.

Suffering people don't care whether their treatment has scientific verification as long as significant improvements occur. And there have been too many successes to dismiss them all as chance. Even if the results are mainly psychological, a false sense of relief by scientific standards, they still work. They make people feel better. Perception, subjective reality, is as real and more important than an objective reality that doesn't do anything to solve a problem. It doesn't make logical sense but it is what happens.

Art plays a very important part in these changes. The principles that guide art are actually at the heart of the missing elements of the scientific approach. Examining hemispheric specialization of the brain makes this clearer. The concepts basic to science are governed by one side of the brain while those important to art are controlled by the other. The recent emphasis of education, during the past scientific revolution, has neglected this half of the brain. It might be said that the problem with the old paradigm was in its incomplete use of the brain. This gives a slightly different perspective on the issue but confirms the basic idea that the scientific paradigm is flawed and incomplete.

The importance of art in this new view has become publicly apparent. Art has emerged onto a new plain in the past few years. Through attacks on art and artists the power of art has been revealed. The ability of art to raise questions, to make people think, and possibly

become creative themselves is a major threat to the status quo. These attacks are outward reactions to a changing uncertain world and art is seen as connected with these changes. Change is a threat because people do fear the unknown.

Art is about change. It doesn't accept anything the way it is. It is always searching and looking for new ways to view things and exposing the old as inadequate. The change that is happening is that kind of change. It is one that is breaking down old systems and beliefs. Art is directly connected to this.

The power of art can be seen very clearly in the media industry. Hollywood and the record industry are changing the world. Politicians court the endorsements of the media stars while the stars themselves raise money in massive quantities for the social issues that big government is failing to address adequately.

These media giants are often criticized as being somehow a perversion of society. They, in fact, are very much informed by the general arts climate to which they maintain strong connections. It is not uncommon to find rock stars who have classical music training or who have been to art school. Many movie stars have had, at least, passing experience in *legitimate* theater. They may not all attain the standards held for great artists but great fine artists and actors are their role models.

The arts have informed the changes in our society much more than most people would admit. Those that fear the changes have good reason to fear and object to the arts.

Another major indication of this shift comes from within science itself. Faced with its failure to be able to answer all questions logically it tries to incorporate into its theories wild cards to explain the anomalies. One such wild card, "**meaningful coincidences**," simply acknowledges exceptions to the conceptual framework of science without feeling the need for further explanation (Harman, 1990/91).

Undoubtedly, the hottest wild card is chaos theory. The theory seems to say that random or chaotic events which can't be explained, seen from the proper perspective, must fit into a higher sense of order. For example, though the purpose of random brain wave activity is not understood, the brain does appear to do some pretty useful things with them; therefore, the random activity must fit into a higher logical order.

This is the science that tries to dismiss the thousands of years of experience instilled in the Chinese physician or aboriginal medicine man whose practices don't make logical sense but whose acupuncture or sweat lodge ceremony relieves real pain and suffering. Science itself, through chaos theory, is acknowledging the change in the objectivity paradigm.

It is difficult to talk about

what the ramifications of this shift will be without using the same platitudes of previous paradigms. On one hand, a vision claiming new heights for all of human achievement in perfect harmony with the universe is seductive and appeals to the subjective, emotional self of the new paradigm. On the other hand, the old paradigm's objective, rational side predicts the acceptance of the ambiguity of the artist with a freer association of things that leads this way and that, always toward something new and surprising, but seldom to paradise. The new paradigm, you see, means accepting contradictions.

Certainly the recognition of the values of intuition, feeling, personal perception, and all the softer, warmer, wetter sides of life will bring a more humanistic approach to everything. People and all the universe will probably be thought about less like cold, hard objects and with much more compassion based on the acceptance of differences and our understanding of the fallibility of our subjective nature.

The arts should bring a richness to life without threatening people's basic self definitions. People should understand that a different view does not mean that their view is wrong. Science has implied that there was, ultimately, only one right view. The arts will be seen as a valuable tool for keeping society fresh and alive. Its constant questioning and reevaluating will help develop people's ability to live with uncertainty, seeing it as exciting, not threatening.

Science and art should not be separate. They should be understood as part of the same whole, both exploring the essential nature of this great mystery everyone is a part of. Both will continue to play with the pieces of the mystery that they discover and look to each other for inspiration. The sciences, more fully informed by the creative process, will stress inclusion, seeing the larger picture. Art will have a greater understanding of its place in the world and be more accessible to the general public, aiding their growth, development, and balance.

Changes will need to take place in education to accomplish this and these changes will inevitably occur. C. P. Snow noted the same need during the scientific revolution. Though the scientific revolution was already well under way, he felt that our education system lagged far behind (Snow, 1969). Sputnik did, eventually, throw education deeply and heavily into the scientific fray almost to the exclusion of everything else. This change came cataclysmically and with incredible force. The new emphasis on math and science made it seem like that was all that was important in life.

As the paradigm shifts in a new direction it is important that this doesn't happen again. Science isn't bad, it just isn't everything. There needs to be an integration of the arts and sciences in a way never conceived of before. Previous unions of these two did not have

the tremendous specialization of talents dividing the population the way things are now. These two are symbolic of the two basic ways people encounter and understand the world.

Encouraging and developing more holistic curricula would go a long way in mediating the separations between people both intellectually and emotionally. Acknowledging the importance of the emotional and perceptual parts as essential parts of the whole person can heal the wounds that have been caused by splitting our being and denigrating certain parts of ourselves.

The integration must be in all fields of endeavor. Art and science simply represent the extremes of human activity. While integration is important and the connections between fields must be communicated, in-depth investigations in specialized areas can't be lost.

This is not as difficult as it might seem. Looking at the basic assumptions of these two extremes, art and science, the differences that have been elucidated here certainly exist, yet at the same time, it is also true that the goals for each are essentially the same and the procedures they utilize are almost identical.

In science: "creating, testing, and applying conceptual models is the chief *activity* of the scientist" (Harman, 1990/91). There would be little argument that this is also the "chief *activity*" of the artist. The values of the scientist are "openness of inquiry, healthy skepticism, and public validation" (Harman, 1990/91). Again, although the exact words would not be used in reference to the work of an artist, the concepts are the same.

Openness to new ideas is the bedrock of art. Skepticism is often at the core of the artist's view of society, the constant questioning that was mentioned earlier. And public validation? Well, there is probably nothing more public than the arts. Art is literally put out for public view and directly contingent upon public acceptance at some level.

There are three areas which cause problems. "***Objectivism***: the assumption of an objective world which one can hold at a distance and study separately from oneself" (Harman, 1990/91). This raises the problem upon which most of this paradigm shift thesis is based. Though an incredible gap is implied here, it becomes a minor one once the leap to a new vantage point is made. What is objectivity to a subjective viewer? It means that there are multiple realities, maybe even an infinite number of realities. This does not mean that all of them will or can be considered at the same time. Some will prove to be useful for specific purposes at specific times while others may become useful and meaningful at other times. All that is necessary is to look at the diversity of views represented in art. Each offers something. None holds all the answers. Science will not be

diminished by this. It would continue to look for objective reality within clearly defined closed system for particular practical purposes. All life will be enriched once the values and limitations of each are appreciated.

Another problematic area is "***Positivism***: the assumption that the real world is what is physically measurable" (Harman, 1990/91). Considering that what is often measured by science is that which can't be experienced directly (subatomic forces) then, art can be thought of as the measure of the invisible, internal forces within people. In this way art fits within the criteria of *positivism*.

The last of these problem areas is more a procedure than a conceptual distinction. "***Reductionism***: the assumption that we come to really understanding a phenomenon through studying the behavior of its elemental parts" (Harman, 1990/91). The arts are often seen as an *additive* process, bringing together things to construct something new. This difference is just an illusion. The arts depend on a great deal of observation and analysis (*reductionism*, if you will) before it attempts to create. Science, on the other hand, does a lot of adding, pulling things together to create its models.

This is a simplification, to be sure, but there are many similarities and overlaps between these apparent polar opposites. Because of this, they can be used together very effectively in education. For example, scientists often use brainstorming as a useful method for exploring the attributes of a particular problem and for sugesting possible solutions. The scientist usually does this verbally and mathematically and occasionally visually. The artist is a specialist at this visual activity. Artists may make reams of sketches to explore the nature of a particular problem. Teaching the two together can only benefit both fields and help balance the individuals. Both the artist and the scientist work with metaphor, as well, in order to understand something new. The scientist cannot help but be enriched by the scope and variety of metaphor that artist deal with. In order to communicate more effectively, artists would benefit from the specificity of the metaphors scientists employ in their models of the world.

These are only a few examples of integrating the components of art and science. With more thought and exploration many others can easily be found. People can no longer afford to split our internal reality from external reality. Our future, the future of the planet, depends on our being whole, whole in ourselves and part of the whole of existence.

It is particularly important for those involved in the new technologies to take all this into consideration. The objective realities of machines can be enticing while the subjective lives of the people affected by them is messy. The multiple realities that

subjectivity implies are not easy to work with. It is much cleaner to narrow the focus to easily measurable scientific realities and forget about people. This is no longer acceptable. Nuclear dump sites, wholesale pollution, uncontrolled development, and devastating human alienation has proven that. Scientific and technological advancements must be tempered with concern for and acceptance of the verity of human subjective needs.

Though people, in general, are already responding to these changes, understanding why they are feeling and behaving the way they are (rejecting science) will take a long time. It took a long time before there was any perceivable change at any level of society because of Einstein's discoveries except, maybe, within scientific circles on theoretical levels. Understanding by the public will take much longer and many will never understand it. Never the less they will respond in synchronicity with the new view the way people did with the scientific revolution.

What is happening to most people looks and feels like confusion because of the vastness of the changes. It is similar to moving to a new place. When you first get there everything is chaotic and confusing. The roads don't seem to go where you want to go. The buildings are all in the wrong places and no one is familiar. They all have strange quirks and customs. After awhile, however, you are no longer aware of these feelings, everything is in the right place, it is easy, almost automatic, to get around, and the people are the same as you.

The fears and resistance that are already being encountered and certainly will continue to be encountered in the future are devastating at times. Just as moving from one place to another causes severe trauma in some people. Often, children will only go kicking and screaming. This is all to be expected until the critical understanding or familiarity with the new takes place and then it will seem like the only way

The old ways will become archaic. How could anyone have believed in the old ways. As difficult as the transitions are and as much as many would resist, change is inevitable. Genies can't be put back in bottles. Just as someone can't unlearn how to ride a bicycle, the realization that the outside world is created as much by people as people are created by it can not be taken back either.

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